QUARTERLY

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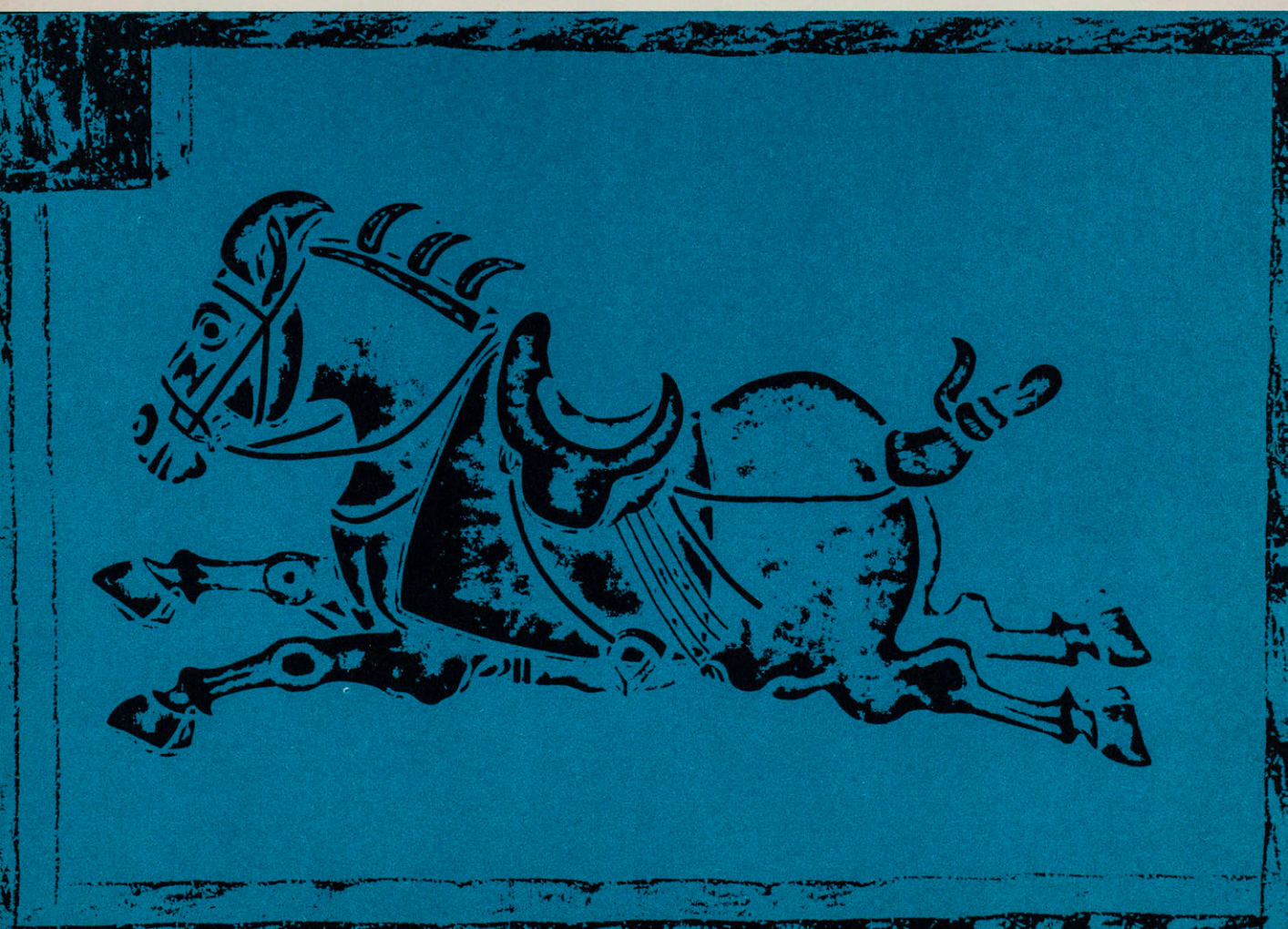


THE MACHRIS EXPEDITION

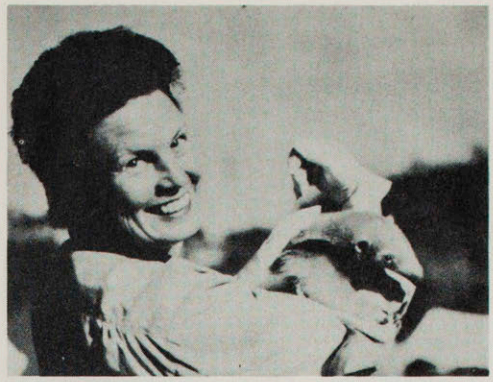
Some of the zoological and botanical collections preserved in natural history museums have been bought like art collections but as a rule this is not the case, as occasions for such purchases are rare. They have usually been gathered by trained naturalists especially sent to a given territory for the purpose. This is also far the best way to proceed, as it enables the collectors to obtain all sorts of interesting data and to make useful observations, which greatly increases the scientific value of the material. It however requires adequate financial means which few museums actually possess. They rely, therefore, on generous friends, and the Los Angeles County Museum fortunately has several, among whom Mr. and Mrs. Maurice Machris are prominent. They had already contributed a fine collection of Kenya birds in 1954 and sponsored an expedition to the Tres Marias Islands of Mexico in 1955. Last year they offered to organize an outstanding expedition to some still little known part of the world. Mr. and Mrs. Machris and I would be the co-leaders.

We discussed several possibilities. We were first tempted to go to the Comoro Islands, a group of four islands situated in the Indian Ocean between Africa and Madagascar. But this very interesting

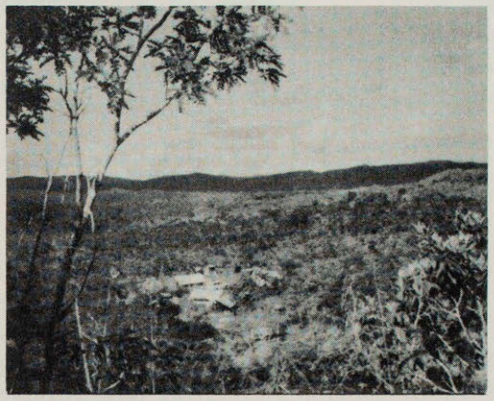
area had been well investigated a hundred years or so ago by its owner, Mr. Humblot. Furthermore the Madagascar Survey of the Paris National Museum had collected there the last few years and it did not seem worthwhile duplicating their work. Most parts of Asia, where I had spent many years before the war, are now closed to explorers and Africa has been very frequently visited in recent years. We then turned our attention to South America with its wealth of birds, plants and insects. The immense territory of Brazil still is far from well-known and we decided to go there. We inquired from many quarters as to which district was more likely to yield interesting results, and among several suggested, we finally chose the center of the State of Goias, in the middle of the country, near the dividing line of the waters flowing north to the Amazon and south to the Parana basins. No collections so far had been made there and it was all the more important to establish an inventory of its fauna and flora that, little disturbed so far, was bound to be considerably damaged in the near future. We had to hurry before it was too late. Central Goias will no doubt soon be heavily settled. It is a healthy plateau, some 3000 feet high, with a good climate, a fertile soil and plenty of water. The slopes and highlands are clad in grass with scattered, short trees, while the valleys harbor fine forests. A long established plan in Brazil is to move the federal capital to central Goias in the vicinity of the present small town of Planaltina. Long dormant, it now seems that the project may soon materialize. When it does, it means the destruction of many endemic species unless adequate national parks and reserves be organized.

The expedition we planned was to make as thorough a survey as possible of that region. We therefore selected to accompany us the Curator of Mammalogy-Ornithology of the Museum, Mr. Kenneth Stager, and the Curator of Entomology, Dr. Fred Truxal; Dr. Yale Dawson, botanist; and a professional cinematographer, Mr. Harry Burrell. Mr. and Mrs. Milton Sperling of South Pasadena also came with us to take charge of the mechanical material and of the camping. Mr. Dean Torrance, Mr. Machris's assistant, accompanied us. Four trucks and two trailers were acquired to transport the considerable camping and collecting equipment we needed, and few expeditions so far have been so well fitted. We had, in particular, our own electric plant and refrigerator which were a great help to our work as it enabled us to accomplish much more in a short time and to work after dark in good light, always a problem in the field.

It is not possible to launch such an expedition into a foreign country without the necessary permits and the help of the local authorities. We naturally wanted Brazilian institutions to share in the results of our efforts. We submitted our plans to the director of the Museu Nacional of Brazil at Rio de Janeiro, Dr. Jose Candido Mello Carvalho, and his answer was enthusiastic. His help and efficiency were remarkable, and we had only to ask him to take in hand the various formalities to have all difficulties settled. He also provided us with two excellent collectors, Dr. Antenor L. Carvalho, herpetologist and ichthyologist, Dr. Herbert F. Berla, ornithologist and Mr. Joaquin Pereira, preparator. They proved to be very competent naturalists and delightful companions. Dr. Dawson was sent to Brazil in advance to contact the director and the staff of the Museu Nacional, gather information and arrange with the Customs for the free entry of our equipment. It was no light task, in which he had considerable help from the American Embassy; particularly the

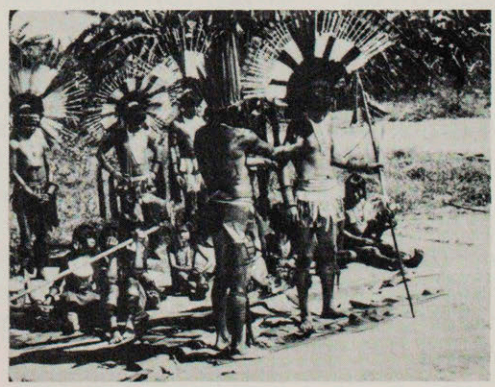


Anteaters were one of the many types of animals encountered by the expedition in Brazil. Mrs. Maurice Machris made a pet of this young myrmecophagite.



"Camp Carvalho," named for the director of the Museu Nacional, was the second major base established by the expedition in Formoso. First site was officially christened "Camp Delacour."

Members of the party prepare to break camp and start back to Sao Paulo. Drying on the line are skins of various animals; 150 specimens were collected in all.



In a unique tribal ceremony, a Caraja chief draws blood from the body of one of his warriors, using an implement contrived of teeth from the deadly pirahna fish.

excellent cooperation of Mr. Harvey Buffalo was most useful. All this equipment was shipped to Brazil about six weeks before our departure.

With only two stops (New York and Caracas) we arrived at Rio de Janeiro on March 16th on an excellent Pan-American plane. It was still summer there, rather hot, but the beautiful scenery sets off this great city in the most attractive way. Our American and Brazilian friends gave us a warm welcome, particularly Dr. E. Beraut, who has made a special study of the numerous local humming-birds and owns a beautiful live collection of them and of rare plants.

We spent six days in Rio to prepare for our trip, visit the museums and the zoo, meet officials and interested people. We could also observe some of the strikingly beautiful birds, insects and plants in the neighborhood, particularly in the mountainous region of Petropolis and Theresopolis. Then we went to Sao Paulo and, after a week, we had our trucks and material out of customs, seeing in the meantime the excellent study collections of birds, mammals and insects of the Museu Paulista, and meeting its prominent director, Dr. Oliveira Pinto and his staff.

We left Sao Paulo on March 31st, taking the road to Goias, a six hundred miles long stretch made often tedious by the very poor state of the roads and the alternation of trying red dust or red mud, according to the weather. We stopped at several towns: Campinas, Ribeiro Preto, Uberlandia, Morinhos, Goiania and Anapolis. Although the whole country is well settled and cultivated, we found some interesting specimens on the way. Farther north, we finally set camp 30 miles north of the small and poor village of San Joao d'-Alianca, on the plateau dominating the wooded valley of a stream, one of the

Maurice Machris, sponsor and leader of the Brazilian expedition, leans from the cab of one of the elaborate trucks built especially for the trip, Motorcade comprised four trucks and two trailers, complete with electricity and refrigeration.

headwaters of the Tocantins River, the great affluent of the lower Amazon. Nature there is little disturbed yet and there was plenty of wild life, including large mammals and birds. We started collecting in earnest. Most of the trees and shrubs were in bloom, many of them beautiful; we were drenched now and then, the rains being late to stop this year—one always visits countries under abnormal climatic conditions — and the biting insects were tiresome. But the temperature was pleasant; we all had great fun, plenty of work, and we kept in good health and temper.

I left my companions on April 22nd and went back with Mr. Torrance to Sao Paulo and Rio de Janeiro. Before leaving Brazil, I had time to visit the eminent Brazilian naturalist, Mr. A. Ruschi, at Santa Theresa (Espirito Santo). His collections of live humming-birds and rare plants are outstanding, and so is his work in nature conservation. I also saw the great falls of Iguasu at the Argentinian border. Plane transportation makes such long trips fast and easy at present.

Members of the expedition included (left to right, standing) Antenor Carvalho, Milton Sperling, Fred Truxal, Erika Schurer, Kenneth Stager, Mrs. Machris, Maurice Machris, Herbert F. Berla, Jean Delacour, Mrs. Sperling, Dean Torrance, and (crouching) Yale Dawson and Joaquin Pereira.

Dr. and Mrs. Dillon Ripley of Yale University joined me on May 4th and we went, with Dr. Béraut, to the Itatiaia National Park, on the highest chain of mountains between Rio and Sao Paulo. This was the beginning of a short tour of several South American countries for the purpose of furthering Bird and Nature conservation. I am the President (and Dr. Ripley the Secretary) of the International Committee for Bird Preservation, as well as Vice President (for the Americas) of the Conseil International de la Chasse, and we were representing also the International Union for the Protection of Nature, a United Nations sponsored organization. During our visits to Argentina, Chile, Peru, Ecuador and Colombia we met with local groups and sections, the Ministers of Agriculture, of Education and other officials, and we hope to have called to their attention the urgent necessity to pass and to enforce reasonable regulations in order to avoid the waste of natural resources and wildlife which is still all too often taking place in South America. Meetings, lectures and various arrangements had been made by the American Embassies and we received everywhere a most cordial welcome, being shown beautiful sites and interesting animals, birds and plants.

Meanwhile the Brazilian expedition continued its work until the end of June, and Mr. Kenneth Stager reports as follows:

"Following the departure of Dr. Delacour on April 22nd, the expedition continued operations from base camp #1 at its location 22 kilometers north of Sao Joao da Alianca. Field parties ranged farther afield each day with fly camps being established in the plateau country in the vicinity of Veadeiros and Cavalcante. Extensive collecting continued in this region until May 6th, at which time base camp #1 was abandoned and the entire expedition returned to its supply base in Anapolis, in preparation for heading northwestward on the second leg of the trip. A prolonged rainy season caused some minor discomforts and problems in the Sao Joao da Alianca area, but our equipment proved adequate and personnel and collections remained dry.

"The transition from base camp #1 to base camp #2 involved eight days of travel with camp being established in the heart of the Serra Dourada on May 14th. The location of this second camp was 20 kilometers southeast of the small town of Formoso at an elevation of approximately 3200 ft. This was a region of dense tracts of tropical rain forest interspersed with more open, drier forest known as Cerrado. A very different array of plant and animal life was encountered here and the collecting by all personnel was renewed with great vigor. The rainy season finally ended and camp life became much pleasanter. Personnel ranged throughout the Serra Dourda as far as the meager, bulldozed road net permitted and great quantities of valuable material and data were secured. With the end of the rains, photographic conditions improved and Harry Burrell, the motion picture photographer, was able to step up his documen-

tation of the expedition's activities. On May 29th, Mr. and Mrs. Machris, accompanied by Mr. Burrell, departed for a fifteen day trip down the Araguaia River to the Carajá Indian country, where they took extensive motion picture sequences of the Indians and their dances. While on the Araguaia, Mr. and Mrs. Machris assembled a large and comprehensive ethnological collection of Carajá weapons, clothing, and ceremonial headdresses for the Museum's department of anthropology.

"Intensive collecting by all members of the expedition continued in the Serra Dourada area, with field parties working 250 kilometers north to Peixe on the banks of the big Rio Tocantins. With our allotted time running out, it was necessary to cease field work on June 14th and prepare for the return to Sao Paulo. Departure from base camp #2 was made on June 17th and the truck convoy arrived in Sao Paulo on June 25th.

"The results accomplished by the expedition during its biological survey of the headwaters of the Rio Tocantins were most gratifying and excellent collections, totalling 2200 plants, 850 birds, 150 mammals and 8200 insects were obtained. These specimens represent the finest assemblage of biological material ever to have been made in the remote State of Goias. Many new and undescribed forms of plant and animal life are included in this material, and immediately following its arrival by boat from Brazil will begin the task of studying and publishing our biological findings.

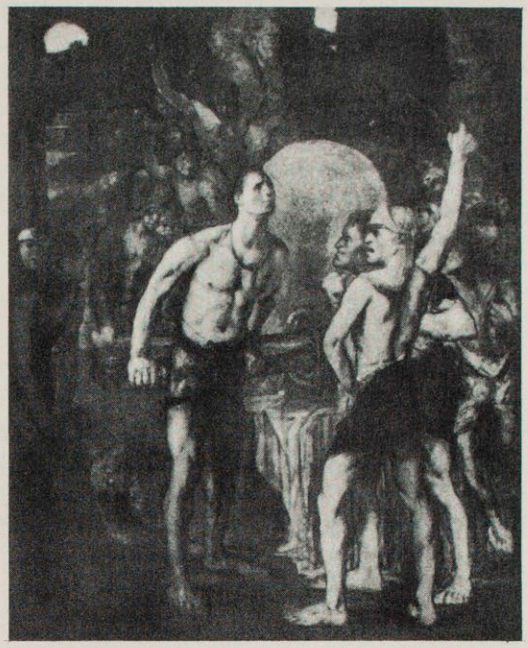
"All expedition members have returned safely to the Museum without mishaps of any kind to mar the record of this large operation."

Collections such as those we have gathered in Goias consist of preserved specimens of vertebrate, invertebrate animals and plants. Study collections, aside from specimens which are shown to the public in our galleries for educational purposes, are needed in all phases of biological work. Museums are centers of documentation, of research, of education and of information.

Art collections serve esthetic needs, but biological museums have a different object. They are the very basis of systematics, the science of classification of live organisms which itself is the base of all further studies. They are of crucial importance in numerous applied fields such as medicine, forestry and geology, as well as in many branches of pure biology: ecology, genetics, animal behavior, for example. They also serve as a depository for vanished fauna and flora, usually destroyed by man. After all, it is important to have as complete as possible a knowledge of life on the earth and of its evolution. It is only during collecting trips such as our recent Machris Brazilian Expedition that such material can be satisfactorily gathered. It will be useful to workers not only at present, but for centuries to come.

There are great biological study collections in the United States, but those which include a good representation of the fauna and flora of the entire world are to be found in the main cities of the East and Middle West only: Washington, New York, Philadelphia, Cambridge (Mass.) and Chicago. We have no such collections yet on the West Coast and students must travel far to the East to find adequate comparative material. We are now endeavoring to build up a general, world-wide collection at the Los Angeles County Museum. It will take a long time to accomplish, but we have made a good start.

DR. JEAN DELACOUR
Museum Director



THREE YOUNG ARTISTS

Figure 1. The Ordeal of Samson by Georges Rouault
oil on canvas, 57¾ x 44⅞"
The Mr. and Mrs. George Gard de Sylva Collection

Georges Rouault was twenty-two when he painted *The Ordeal of Samson;* Pablo Picasso twenty when he did *Courtesan with Jeweled Collar;* and Georges Braque twenty-six when he did *Boats on the Beach.* All three pictures, done near the turn of the century before the artists gained fame or even much favorable notice, today hang near each other in the permanent collection of the Los Angeles County Museum. During the last fifty years the artists have become world famous and it is not surprising that we can see evidence of a precocious talent in each picture. Knowing how well the artists have succeeded it seems worthwhile (especially for anyone concerned with the work of young artists today) to analyze these early pictures, at least briefly, in an attempt to answer questions about the nature of young talent, its recognition and its development.

In *The Ordeal of Samson* (figure 1), as in several of his early works, Rouault chose a religious subject of cruelty and suffering. He posed the sculpturesque figures of a blind Samson and the shorter, threatening soldier in dramatic opposition. The drama has been heightened by contrasting the light on the figures with deep shadows which cover the jeering crowd of Philistines in the surrounding space. This concept of a subject and the way it is painted do not call to mind Rouault's later and more famous works. One thinks rather of a theatrical and dramatic style found in 17th century painting which, at least as it is found in the works of Rembrandt, was studied and admired by Rouault. Or even more, one thinks of the conventions of 19th century academic naturalism, through which a specific link can be made with the work of his teacher at the time, Gustave Moreau.

Moreau is remembered less for his paintings than for numbering among his students Rouault, Marquet, Camion and Matisse. His paintings still, however, receive the specialist's interest and admiration. One of them, *The Apparition* or *Dance of Salomé,* is in the Winthrop Collection of the Fogg Museum of Art. The general style of *The Apparition* is similar

to that of *The Ordeal of Samson,* but a comparison of even the few characteristics already mentioned suggests the particular interest of the student. Rouault has taken the tragic rather than the exotic aspect of a dramatic subject; instead of creating a strange and mysterious atmosphere of light he has simply but forcefully spotlighted the tragedy and surrounded it with melancholy shadows; and he has put aside the elaboration of rich decoration and romantic splendor to present directly the sculpturesque nudes, simple drapery and monumental background.

In works for which Rouault is famous one can see a development of these early propensities for he continued to emphasize the tragic aspects of man and society. The drama has been found less in relating specific incidents, as in *The Ordeal of Samson,* than in the pose, gesture and facial expression of the prostitutes, the clowns, Christ and the bigoted judges which he later selected to express the plight of the outcast and of the oppressed. In the later works the literal glow of light has become areas of thick, luminous color and the traces of academic representation and finish have been discarded in the interest of adding further power through the connotations of paint strokes slashed onto the surface as rough and heavy outlines for the color.

Courtesan with Jeweled Collar (figure 2) was painted eight years later. Picasso chose a different world from which to take his subject, and presented it in an equally different style. The *Courtesan* is artificial and decorative. Her bare, white-powdered skin is touched with cold, greenish shadows. Her long neck is emphasized with an extravagant jeweled collar, her lips are a brilliant orange-red, her hair is dyed red and, piled high, supports a wide yellow hatbrim from which fall long blue-black feathers. She leans back slightly to pose for the artist, or for admirers, rests her elbows on unseen supports and relaxes her hands and wrists in loose curves. Curves are the characteristic line in the composition as they are prominently repeated in the low neckline and the edges of the collar, in the strong outlines of the face, hair and hatbrim, in the darkened eye-brows and, again, several times in the feathers. While giving some definition to an obviously three dimensional subject, these lines seem intended as much as a design on the surface of the canvas.

The interest in fantastic curvilinear patterns began to run wild around 1900 and a whole style of architecture and decoration called *l'art nouveau* was based on them. The same environment produced Beardsley illustrations and Tiffany glass, the Toulouse-Lautrec poster style and, it would seem, this picture. It is the art of Toulouse-Lautrec, which Picasso had known even before he came to Paris, that bears the more direct influence. In at least one well-known picture, done at about the same time, Picasso even used a Toulouse-Lautrec poster as the main background element.

The subject of a courtesan is certainly typical of Toulouse-Lautrec. The older artist also seems to have provided a way of looking at the subject. As Toulouse-

Figure 2. Courtesan with Jeweled Collar by Pablo Picasso oil on canvas, 25¾ x 25¾"
The Mr. and Mrs. George Gard de Sylva Collection

Lautrec did, and in clear distinction to Rouault's later treatment of the subject, Picasso looks at his subject and her situation without moral judgment, concentrating on an incisive characterization of the subject by emphasizing elements in her appearance and manner. Comparison with Toulouse-Lautrec's *Jane Avril Dancing*°, however, shows how the rapid, calligraphic brushwork used by the older artist to create brilliant effects of light, space and form, as well as decoration and description, has been simplified and slowed into heavy outlines and large areas of bright, flat color. There is little suggestion of space, or concern with light. Complexities of action and subtleties of personality have given way to the advantages of a simple, immediate impact.

Just prior to this time Picasso had experimented with a lighter palette and broken brushwork which can be traced back through the work of van Gogh to Impressionism. Within the same year, 1901, he was to go on to his famous Blue Period, which was in turn followed by the experiments leading to Cubism.

It is more difficult to relate *Courtesan with Jeweled Collar* to all that followed than it was *The Ordeal of Samson* to Rouault's later work. *L'art nouveau* elements disappeared as quickly as the style itself did, and Picasso's dependence on Toulouse-Lautrec was also of a relatively short duration. The decorative qualities and the strong draughtsmanship have reappeared frequently as dominant elements and similar subjects have continued to occupy Picasso for a number of years. But instead of developing the ideas in the subjects infinitely as Rouault has done, Picasso has expanded his horizon, and these subjects form only one of many areas his promethean ability has revealed. It is more the rapid changes and the variety in his work during this early period which suggest what was to come. Picasso has continued to work almost simultaneously in contrasting styles, borrowing obviously (e. g. primitive sculpture, classical vase painting, El Greco's paintings) and modifying boldly. He has also found many of his subjects in the world immediately surrounding him, and in all of his work he has used these many sources only as the starting point for the development of his own personal vision.

Figure 3 Boats on the Beach by Georges Braque
oil on canvas, 19½ x 27½"
Gift of Anatol Litvak

Boats on the Beach (figure 3), shows an even greater break with the accepted contemporary styles. The large and varied paint strokes are applied with obvious speed and directness which seems a willful denial of academic finish. The color is (or was in 1906) shocking; the boat, beach and water each contain the complete range of hues, and most of them have been used at almost full intensity. The composition is full of exuberance and movement—beached boats tilt forward to the left; above them horizontal strokes curve in from the right in a quickly changing pattern on the water, the beach line hooks to the left and to the distant staccato accents of the pier; bare masts cut across the brightly lighted hills to a sky brushed in with succeeding layers of rose, green and bright blue.

° *The Gladys Lloyd Robinson and Edward G. Robinson Collection*

Earlier works by Braque show a strong dependence on the work of the Impressionists, of which this subject would have been typical (it is possibly the bay at L'Estaque which was painted by Cézanne) and the handling is reminiscent of the exciting color and free brushwork of van Gogh. But, as one could expect, Braque at twenty-six is freer of earlier influences than Rouault had been at twenty-two or Picasso at twenty. When looking for works which show close relationships and could possibly have influenced him they are found not in the work of older artists, but in that of a group of contemporaries which the critics labeled the *Fauves* or Wild Beasts.

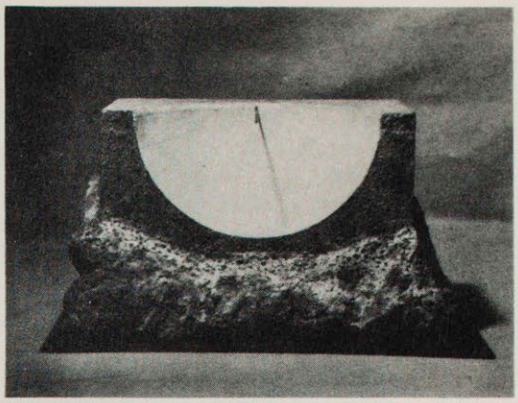
It is difficult to establish influences and counter-influences within the work of the *Fauves* as the movement developed and ended quickly. Braque, however, came to the group two years after it had started and today acknowledges a dependence on the work of Matisse and Derain. In comparison with their work one can perhaps see a tendency in Braque's to richer color harmonies and paint handling. His work is also distinguished by irregular curvilinear patterns as seen here in the drawing of the second boat and its shadow. Both the solid structural form and the ephemeral light effect seem equally hard, but padded by the sensuous lines. If these observations which distinguish the work of Matisse and Derain from that of Braque are justified, they also relate *Boats on a Beach* to his later work, for in the later work the same characteristics are even more evident.

We have seen that these three paintings have in common a tendency to overstatement: in the first there is an exaggerated emotional intensity, in the second a decorative simplification and in the last a colorful exuberance. This tendency to extremes is a frequent characteristic of work by young artists first attempting to channel or use newly discovered powers. The means to do so have not fully matured for we can also see an obvious dependence on the art of others — teachers, great artists of the past or lively contemporaries. As André Malraux has observed, "No artist has ever progressed directly from his drawings as a child to the work of his maturity. Artists do not stem from their childhood, but from their conflict with the achievements of their predecessors; not from their own formless world but from their struggle with the forms which others have imposed on life."

It is tempting to think that the independent characteristics in early works, which reappear in mature works, could have indicated *the* direction the artist was to take. Actually such elements only help outline the path he chose from many possibilities before him and therefore are of more value in studying the whole scope of his career. In considering work by a young artist it is less important to look for his stylistic direction than to evaluate his attempt for independence and, even while he still shows dependence, to look for quality in whatever way the work has been done.

It is, of course, easier to recognize the influences playing on a young artist than to recognize an original talent. And in looking for original talent one can easily go in the other direction and credit any novelty, missing the true struggle to attain both independence and quality. The clear mark of that struggle is our evidence of talent, and the eventual triumph is one characteristic of a great artist. One should be as bold and free in attempting to follow and understand the struggle as the young artist is in taking part in it. And one's effort to recognize and appreciate the artist's work should measure up to his effort in creating it.

JAMES H. ELLIOT
Assistant Chief Curator of Art



Model of Hemicyclium (early form of sundial)
Courtesy Edward M. Brown

CLOCKS

Clocks, as we know them today, did not just happen along. Today's split-second timing is the product of literally thousands of years of study and observation, embodying sciences of astronomy, metallurgy, mathematics, engineering, architecture, and construction.

The earliest time-measuring device was probably one of nature's handiwork: a tree or rock casting a shadow on the plain. The shadow was observed to move and so we have man's first use of a sundial.

Man-made sundials existed some 4000 B.C. in India, China, Chaldea, and Babylonia. Many examples of sundials are in museums today, having been discovered during excavations of ancient sites. They are crude and inaccurate according to our standards, but satisfied the requirements of their time. The sundial only measured sun shadows but this is understandable since the populace were sun worshippers and to attempt any other method would have been an impertinence unto their god.

About 700 B.C. Berosus made a new time-piece—the Clepsydra. These water clocks, in their simplest form, were just bowls which were perforated in the base, allowing the water to escape. Later, two vessels were used, the water draining from one into the other, the lower bowl having degrees of measurement inscribed inside, showing elapsed periods. Parliamentary debates were timed with these instruments and they also served an important function in court trials.

Prone to freeze and becoming sludged, the Clepsydra was followed by the Clepsania (sand thief), substituting sand for water. The sand glass stayed a useful timepiece for hundreds of years and still finds itself useful as a home appliance.

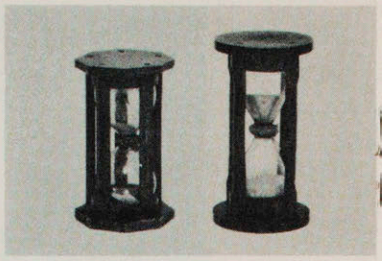
Just when clocks came into being is conjecture. In an old manuscript in the Vatican it is noted that in 996 the monk Gerbert (afterwards Pope Sylvester II) decreed that clocks should be placed in all public buildings. Just what these clocks were is problematical inasmuch as the word *clock* means bell (from the latin clocca). Were they sundials, clepsydra, or clepsania which, reaching a set point in their progress, were noted by an individual who then manually tolled a bell? Or were they machinery with gears and weights which, without any outside aid, struck a bell? We do not know.

Despite historical references to horologium (the all-encompassing term given to time-measuring devices), no definite clue is given on any medieval clock that can be substantiated until the 14th Century.

The great clock of Charles the Fifth of France, constructed by Henry De Vick, was some 17 years in the making. After completion it was mounted in the tower of his palace. This was in the year 1357. Crude, cumbersome and erratic, taking the constant attention of three or four men, it could not have possibly kept constant time within the limits of two or three hours per day. Many clocks exist in Europe from the 14th Century and, subject to periodic care, are doing today the same yeoman service they were first intended to do.

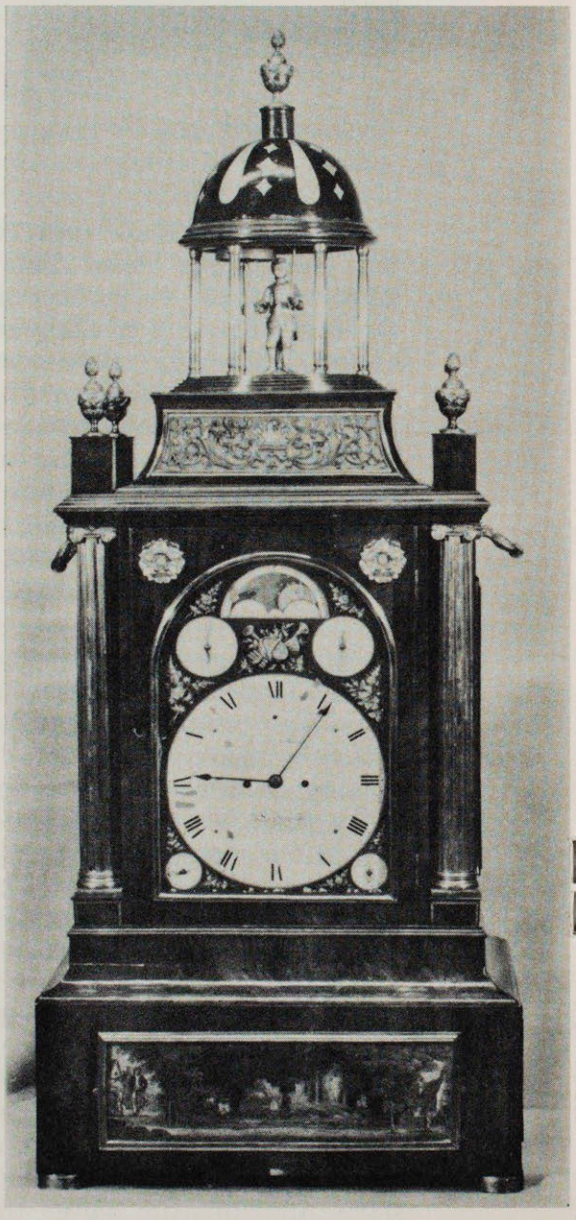
In the middle of the 15th Century portable clocks came into being, commonly called Chamber Clocks. They were generally either square, rectangular, hexagonal, or octagonal in shape, spring driven, having but one hand striking and alarm mechanism. The craftsmen who wrought these treasures were locksmiths and blacksmiths, using only the tools of their trades: hammer, anvil, file, graving tool, etcetera.

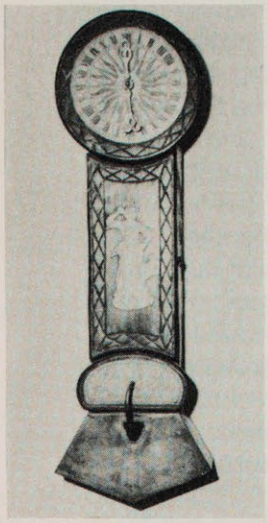
In 1637, Christian Huygens of Holland (scientist, metallurgist, astronomer, physicist, mathematician—master of all the then known sciences) is credited with first attempts to give the people a reliable timepiece. In his journal and correspondence with Galileo of Italy, he resurrected the pendulum of the scientist Galileo (used by the old scholar in his astronomical observations) and, using the motion of the pendulum kept oscillatory by weights in turn attuned to a train of gears, we have the first fairly accurate timepiece. Many of the clocks made in this era are still used today and, although rare and crude, they match the abilities of the modern timepiece.



Clepsania (sand glass)
Henze Collection

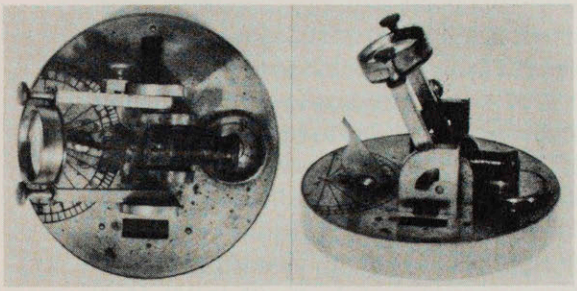
George III Musical Clock with Automatons ca. 1810,
English (London) Handley and Moore
Hearst Collection



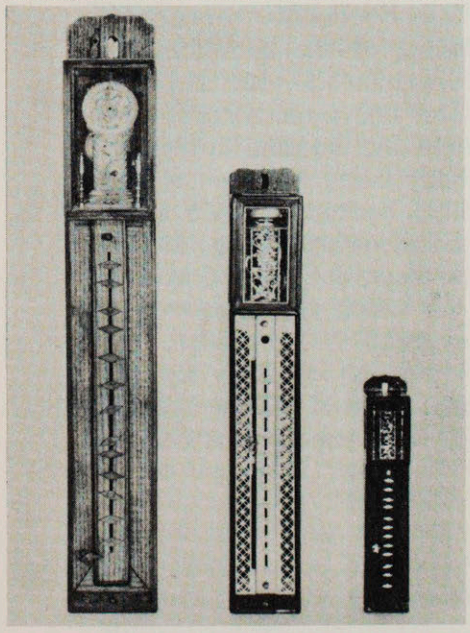


Clepsydra (water clock)
Courtesy Frank P. Church

Midday-Shooter Sextant (noon gun sundial)
Henze Collection



Japanese Pillar or Stick Clocks
Courtesy Los Angeles Chapter of Watch and Clock Collectors



By dint of masterful engineering design, very exacting clocks were made in the 17th Century and comparatively little change has been made since the beginning of the 18th Century.

Watches came into being in the first part of the 16th Century, about 1505. Peter Henlien has this invention to his credit. The first watch was heavy, weighing five or six pounds, about six inches in diameter and two and one-half to three inches thick. It was handmade in every respect and was an uncertain timepiece. But nonetheless, it was acclaimed in Europe and became the much-sought gift for emperor, king, and nobilette. By the middle of the 16th Century watches had become a toy and were made in the most fantastic fashions—the Bible, scarabs, bell, crucifix, butterflies, fruit, and musical instruments became the outer cases.

Dr. Robert Hooke in the middle of the 17th Century, although not an artisan, contributed an important step in the improving of the watch: the hair spring. In 1750 Thomas Mudge invented the detached lever escapement which is actually the last real advance in watch engineering.

The latter part of the 17th and the beginning of the 18th Centuries was the golden age of horologists. Ramsey, Thompion, Graham, LeRoy, Bréguet—names to conjure with. Their priceless creations are still with us and I suppose will still be doing their satisfactory service to man two or three hundred years from now.

American watch and clock makers are not generally accepted as great contributors to the science of horology but will be ever remembered as great industrialists. New England clockmakers, ever aggressive to capture the world's market, produced literally hundreds of thousands of timepieces and shipped them throughout the civilized world. The great American clock-makers were

David Rittenhouse, the Willards, Eli Terry and his sons, Seth Thomas, Joseph Ives, Lemmuel Curtis. The labels of any of these men in a clock quickens the pulse and loosens the purse strings of any American collector. Broadly speaking, the English makers sacrificed beauty of form for timekeeping ability; the French exacted every conceivable form of artistry in their creations. In Continental Europe, Germany, Austria and Holland are better remembered for their monumental clocks, many of which date back to the 16th Century and are still the delight of the traveller. No one can stand before any of these treasures without awe and respect for the artists who created them.

Various everyday implements have been used in the past for time-reckoning. To mention a few: the walking stick was originally the measuring device. Notches and marks were incised on a four-sided stick, each side representing one of the four seasons; the shepherd's crook informed the shepherd the progress of the day; the Arab's tent cast its shadow on the sand. In the colonial days a house was never built that did not have a window of large dimension, facing to the south. This was done in order to make the noon mark. Clocks being scarce, this was a very important feature of the home convenience. A punctured bowl cast on the village pond, watched by an oldster who observed its ultimate sinking, who then sounded a gong, bell, or other noise maker, and then repeated this process, is still used in the more remote villages in China and Tibet as their only means of recording time's passing.

In the 1500's and 1600's, lamps were used as timepieces. Combustible fluid was placed in the reservoir which was divided by a band indicating hours. As the oil was consumed, the level lowered in the reservoir to denote elapsed periods.

Our modern split-second timing is the product of a highly industrialized era. Our method of time-keeping is only a little over 400 years old. The Saxons of England divided their day into 8 parts which signified the ebb and the flow of the tide. The ancient Jews divided their days into watches—8 in number. The early Christians divided their days into canonical hours — 7 in number, from Prime to the Angelus. The division of the day into 24 hours was probably first used in Italy. Seconds were introduced in the late 1600's as time-measuring divisions, and were first called second minutes.

The year Rome 1296 is important as a historical reference inasmuch as it was in this year that the Christian year started. Dionysius, a politician of that time, realizing the ever-growing importance of the Christian movement, suggested to the ecclesiastical authorities that they should date the Christian church from the year of the birth of Jesus Christ. The suggestion was put into legal record so the year Rome 1294 became Anno Domini 540. The scholars of the day accepted the year of Jesus Christ's birth as Rome 754.

The beginning of the 20th Century brought the automobile, the airplane, radio, and later television. At first they were mysteries and amazing to the layman. But today every high school student is entirely conversant with all of these mechanical marvels. Today atomic science is the playground of the savant. Tomorrow the world of the atom will probably be common knowledge. Yet time is not understood even by the scientist today. It could be that it never will. Perhaps it is one of God's great mysteries.

FRANK P. CHURCH

THE LIBRARY HELPS THE MOVIES

The Library telephone rang and a man's voice asked, "Where can I get information on Mississippi River showboats?"

"Perhaps we can help you. We have pictures of them."

"Oh, no, I don't want pictures. I want to *buy* one".

He was sincere in his request. He was calling for a motion picture studio.

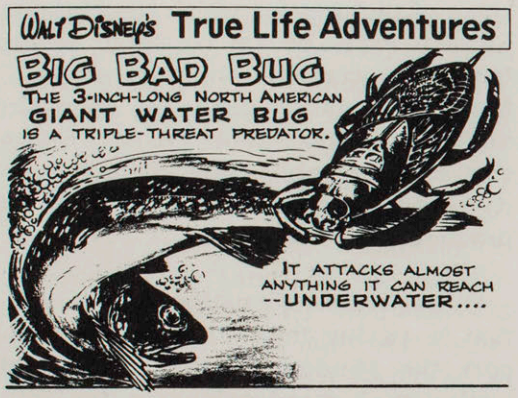
Museum librarians are quite accustomed to strange questions, many of which come from the studios. They are part of the Library's functions, part of its kaleidoscope of activities. The Library is many things to many people—an "ivory tower" to the intellectual visitor, a "hobby lobby" to the collector, and a practical, working collection of books to the curators.

For well over eighteen years the Museum Library has been lending books to the research departments of the major studios. Last year the studios borrowed 184 books from the Museum. Of this total, Walt Disney Productions borrowed 115. Because of limitations in time, and a small staff, the Library answers only those questions that come from personal knowledge of the librarians; no time can be spent in research for the studios. In most cases the studios know what books they need, and we of the Library staff lend them via interlibrary loan. The studios send messengers to pick up the books, so there is no time wasted on our part in mailing them; and the studios are infallible in their system of returning books.

Many outsiders do not realize that all of the large studios maintain research departments of their own, with staffs running from two to eight in each, for highly technical and exacting research. All maintain libraries and picture collections of their own, and they borrow from other libraries in this area, in addition to the Museum Library. In the types of pictures for which the Museum Library lends books, no detail is too trivial for accuracy. The pictures are of the higher caliber—historical, scientific, artistic—the educational type of picture that elevates public taste, of such quality that we are proud to be of use in its production.

By way of reciprocation, and in addition to paying taxes that help to support the Museum, these studios hold institutional memberships in the Museum Association: Warner Brothers Pictures, Inc.; Cecil B. de Mille (a benefactor member); Samuel Goldwyn Foundation (a benefactor member); Metro-Goldwyn-Mayer Studios; Paramount Pictures Corporation; Republic Productions, Inc.; True Life Adventure Unit of Walt Disney Productions; 20th Century-Fox Film Corporation; Universal-International Pictures Company, Inc. They are all anxious to assist us in furnishing pictorial material from their files, when we request it. An especially useful series of "stills" came from the Walt Disney studios, for use by the taxidermists in their work on the moose habitat group.

The recent successes of Disney's live action pictures have been in fields covered by the Museum, a fact which accounts for his research department calling on the Library so heavily. Accuracy is the first law at Disney's. His artists are required to submit written proof of accuracy with every drawing. The "True Life Adventure" series is put into motion pictures for theaters, also over ABC-TV, and also into a daily feature in newspapers throughout the United States. The Library has helped in all three versions of this series; an example of how we have helped with the newspaper version is shown in illustrations of the giant water bugs (here illustrated), the huia bird of New Zea-


WALT DISNEY'S True Life Adventures
BIG BAD BUG
THE 3-INCH-LONG NORTH AMERICAN GIANT WATER BUG IS A TRIPLE-THREAT PREDATOR.
IT ATTACKS ALMOST ANYTHING IT CAN REACH --UNDERWATER....

land, and the snipe fish, all of which were found in our books. The "Mickey Mouse Club" on ABC-TV has its serious moments, when eleven minute "shorts" on animal life are televised about once a week. The Library's books have been used for pictures on the bison, prairie dog, bear, coyote, lion, African elephant, and giraffe. Also on ABC-TV, Disneyland has featured the Joel Chandler Harris story (for which they borrowed six copies of "Frank Leslie's Weekly" of that period); Antarctica, past and present (for which they borrowed the narrative of the Wilkes expedition); and the history of the animated cartoon, using our copy of Muybridge's "The Horse in Motion".

What is the color of a squid's eye? What kind of harpoon was used by whalers around 1870? What was the uniform of a naval officer (of any nationality) in 1870? These questions, for Walt Disney's "20,000 Leagues under the Sea", were answered by our Library books.

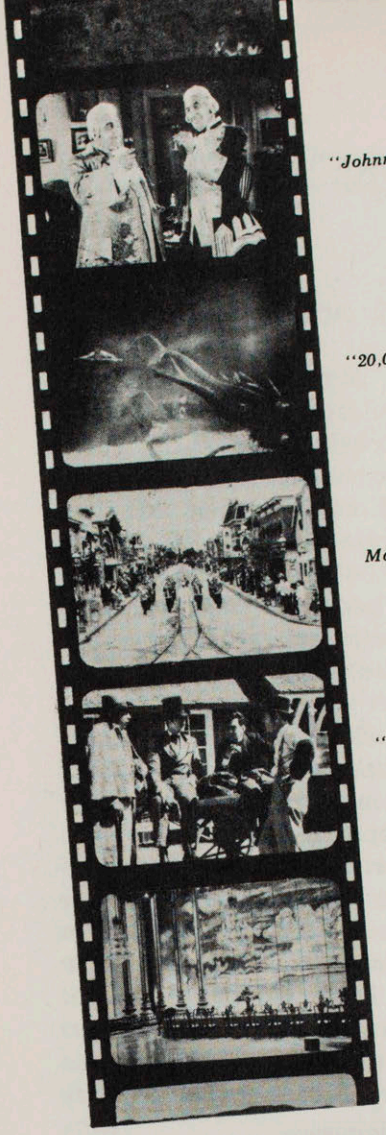
Walt Disney's "Westward Ho, the Wagons," a story of child life on the Oregon Trail in 1840, required research on customs and costumes of the Plains Indians. The Library loaned a large volume of Carl Bodmer drawings of Plains Indians of the period.

The American Revolution will be featured in "Johnny Tremain", another full-length picture by Walt Disney Productions, scheduled for release in July, 1957. Problems of British uniforms of that period were solved by the Library's copy of Leffert's "Uniforms of the American, British, French, and German Armies in the War of the American Revolution"—a book which was found to be extremely rare.

Excerpts of "Secrets of Life" already have been featured on ABC-TV's Disneyland and it has just been released, full-length, in color, for theaters. For its time-lapse photography of plants, rereach was done from our books on the clock-weed and heron's-bill.

And then there is Disneyland, in Anaheim! In the original plans for layout, our books on the world's fairs of the late nineteenth century—a whole shelf of books—were sent out to the studio. The architectural details for Main Street came, in part, from a shabby old volume called "The Atlas Map of Peoria County, Illinois," 1873.

This same shabby old book received a kind of "supporting role" in Metro-Goldwyn-Mayer's "Raintree County". It was photographed page by page, and



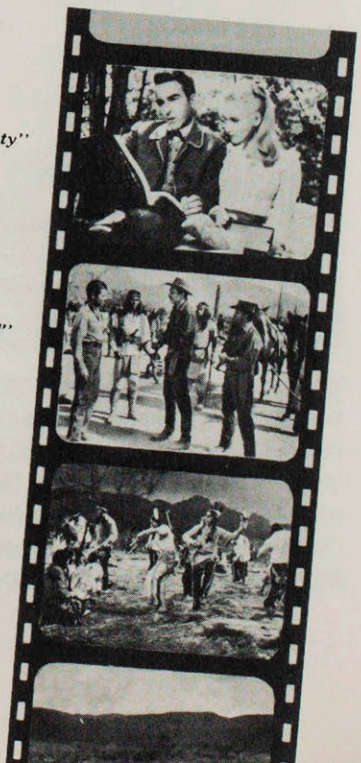
"Johnny Tremain"

"20,000 Leagues under the Sea"

Main Street, Disneyland

"Around the World in 80 Days"

"The King and I"



"Raintree County"

"Walk the Proud Land"

"Westward Ho, the Wagons"

the facsimile was used, with a shiny new cover, as a graduation gift from Montgomery Clift to Eva Marie Saint. Names of towns and railroads came from our "History of Ottawa County, Michigan," 1882. Signs on store fronts came from "Illustrated Cincinnati", 1875. Costumes came from books in the Costume Curator's office. A volume of Godey's Lady's Book, 1852, furnished a priceless illustration of a type-setter in action, for which M.G.M. researchers had searched for weeks.

Michael Todd's "Around the World in 80 Days", presented world-wide problems, also, in research. A research worker came in person to borrow books, a few at a time, over a period of several months. Here illustrated is the costuming (found in our books) of a station master of the 1870's in the Colorado Rockies, portrayed by Joe E. Brown.

The Universal-International Pictures Corporation borrowed books on Apache Indians for their "Walk the Proud Land". 20th-Century-Fox borrowed books on Indonesian art (the best collection that they could find in this area) for "The King and I", for use by the set designers. Cecil B. DeMille researchers borrowed books on the flora and fauna of northeast Africa, so that they could visualize the region in which "The Ten Commandments" was made. They had to acquire this knowledge for planning the scene depicting the victorious return of Moses from the Ethiopian campaign —a scene which follows the account of Josephus.

Motion picture studios borrow from many other libraries, as well as from the Museum's. And curators on the Museum staff assist the studios, within the limitations of time. In its small way, the Library does a fine service for an important industry of this area.

MRS. DOROTHY E. MARTIN
Museum Librarian

THE MUSEUM ON THE AIR

Unlike the superb representations of the painters' art which grace the walls of the Museum's galleries, a radio broadcast is never the result of single effort. The weekly County Museum concert is the consequence of much painstaking and closely coordinated effort. The sum total of that integrated effort is heard each Sunday afternoon on The Music Station from three to four o'clock.

KFAC engineer Leonard Robinson leaves his home in Westchester at one o'clock each Sunday. With normal cooperation from the flow of Sunday traffic, he reaches the Museum at one-thirty. During the following two and a half hours, he's a busy fellow.

His first act is to take the microphones and their cables from storage and place them in the general broadcast area. Exact placement, a highly critical factor, comes later.

Next, the complicated control panel in the broadcast booth is turned on to

activate the amplifiers. Then, step by step, he checks every component of the complicated broadcast gear. The dual lines from the Museum to the KFAC transmitter on Rodeo Road in the Crenshaw area are checked by telephone. They must be completely noise free to reproduce their fifteen thousand cycle highs.

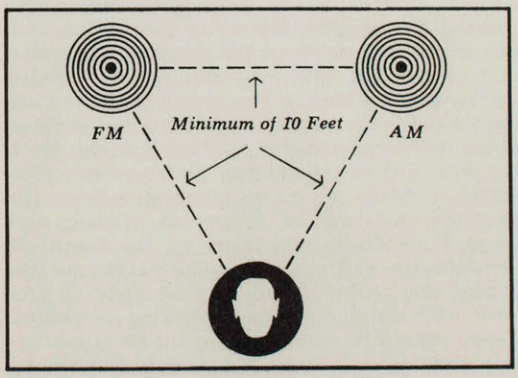
Since start, stop and commentary cues are taken from the same broadcast signal you hear at home, the radio receiver in the control room booth is also examined critically. In addition, the public address system in the concert hall is checked out, so that the audience present may hear introductory comments by announcer Carl Princi, who speaks from the KFAC studios in Prudential Square.

At two o'clock sharp, the musicians arrive for final rehearsal and exact placement of instruments in relationship to microphones. Since this is a stereophonic broadcast, placement is vitally important to insure proper balance of the various instruments in the ensemble of the day. Working with musical consultant Philip Kahgan, Engineer Robinson determines which location for individual instruments results in the unified effect so necessary for ultimate

performance efficiency. You may be interested to know that the piano, which tends to dominate acoustically, is always the most difficult to locate properly. In stereo broadcasting, the musicians are moved rather than the microphones, since the illusion of con-

cert hall perspective in broadcast is lost if the spacing of the two microphones is not exact.

Stereophonic broadcasting, a relatively recent development, is considered by most sound authorities to be the next important addition to enjoyment of good music realistically reproduced in your own home. One of the two microphones sends its electronic message to the KFAC-AM transmitter, the other to the frequency modulation transmitter. Since our FM transmitter is located on Mount Wilson, the FM portion of the program sent by one of the two telephone lines from the Museum is relayed by microwave from the KFAC primary transmitter site to the robot controlled unit on the mountain. The result for the listener is a vividly realistic pickup at home, provided your two receivers, one tuned to KFAC AM at 1330 and KFAC FM at 92.3, are properly placed. This diagram illustrates the general plan of arrangement, subject to minor variations influenced by the size and shape of the room in which you place your receivers. Of course, the program may also be received individually on either AM or FM.



At two thirty, the musicians recess until air time, and the in-person audience is admitted. During this period, Leonard Robinson checks script with Irene Tillinghast, who prepares all broadcast copy and acts as general coordinator of the program under supervision of producer Russell Smith. Much of the success of the decade of Museum Concert broadcasts is due to Miss Tillinghast, whose capacity for detail is only one of the tangible assets she brings to each program.

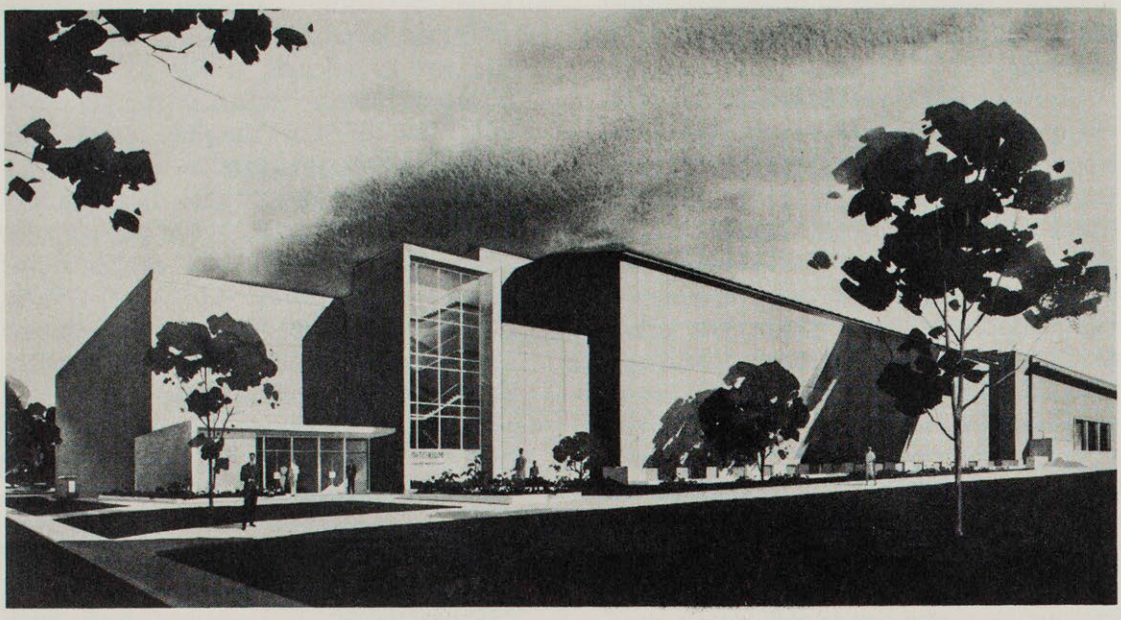
Shortly before air time at three, announcer Princi calls in for reassurance that all program facets are in their proper relationship. At three o'clock, the program goes on the air, with the effortlessness of effect which bespeaks much effort in preparation.

Those of us responsible for the program policies of The Music Station are rightfully proud of the Museum Concerts. At the outset of the broadcast several years ago, we allocated an hour of premium Sunday afternoon time to this feature, which the station feels both furthers the cause of better music and provides a showcase for resident professional artists. While we are also by choice primarily a station whose program fare is made up largely of recordings, we believe that with this "live" broadcast an important service is being performed, not only for local musicians but their audience as well.

So the degree of cooperation involved in presenting the weekly Los Angeles County Museum Concerts is continually a vital factor. It must be ever-present to maintain the high standard which the broadcast has set over the years. Happily, one important element continues to grow — perhaps the most important cooperative essential of all: total listeners. Surveys show a steady growth in audience, a growth which we anticipate will continue and increase with the passage of time.

In the meantime, you have a date each Sunday afternoon at three o'clock with either your AM or FM receiver or both, for the latest in the continuing series of Los Angeles County Museum Concerts.

HOWARD RHINES
Program Director KFAC



A NEW MUSEUM ADDITION

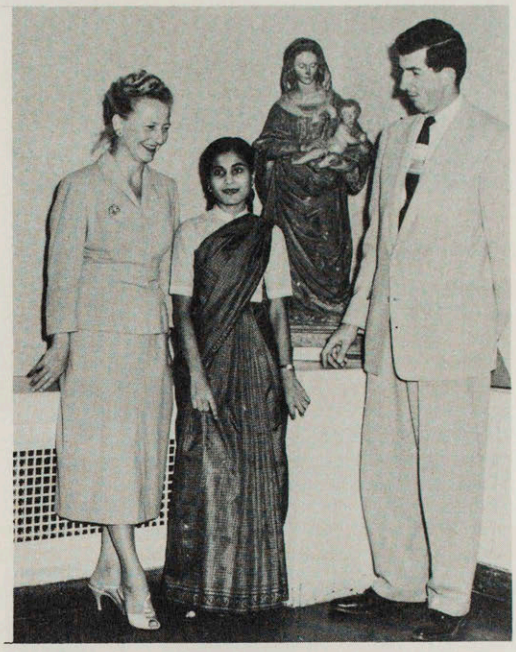
In the late twenties the last unit of the present Museum building was completed. Since that time the Museum's collections, activities and services have expanded at a considerable rate. Building space, on the other hand, has remained the same. During the past ten years, for example, gifts of objects for the collections have totaled in excess of five million dollars in value. Storage and display have been a constant problem to the point where concerted efforts had to be made to return much loan material that could not be adequately housed due to the growth of permanent collections. Storage facilities and galleries were reorganized to make more efficient use of space and provide for more effective displays. While these measures helped to alleviate conditions at the time, continued growth was inevitable, and additional space was the only answer.

It is gratifying to report that the Board of Supervisors has now appropriated the funds necessary to construct an auditorium-gallery addition to the Museum. This addition, which is pictured in the architects' rendering above will provide an auditorium seating between 450 and 500 persons with all necessary facilities, to be used for lectures, documentary films, chamber music concerts, demonstrations and other similar events and will include gallery space on the ground and main floors connecting with existing galleries. The auditorium will have a separate outside entrance which will permit its use as an isolated unit of the Museum proper or access can be had from the galleries when desired. Facilities are being provided in the ground floor gallery for use in connection with serving of refreshments for receptions and special gatherings. The new unit will be located at the western end of the present building adjacent to Menlo Avenue and additional parking space will be provided immediately to the north by extension of the present parking area. Preliminary plans have been completed by the architectural firm of Riener C. Nielsen and Gene E. Moffatt, appointed by the Board of Supervisors, and are now awaiting formal approval and authorization of that body to proceed with final plans and working drawings. These should be completed so that a construction contract can be awarded early this spring which would mean that the new unit would be ready for occupancy about next January.

In the meantime, with plans in actual process, the Museum is holding its breath both in anticipation of this long awaited event and to avoid any catastrophic bursting of the seams at this eleventh hour.

CHARLES F. GEHRING
Assistant Museum Director

ASSOCIATION NEWS

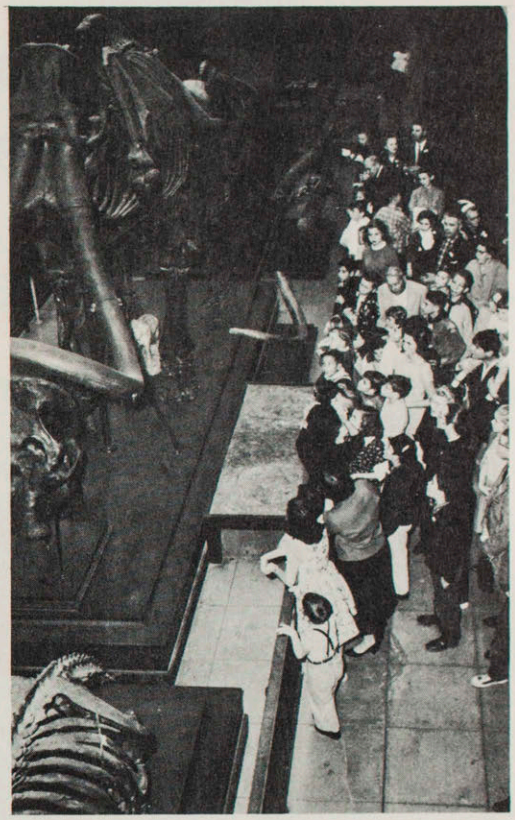


Christmas Party

The fourth annual Christmas Party for International Students, traditionally presented every December by the Museum Association. was held on December 2, with 235 guests from 25 different countries present.

As in the past years, the foreign students, representing 30 organizations and colleges, gathered in the Sculpture Gallery, many of them dressed in the costumes of their native countries, to participate in a specially planned program that included personally guided tours of the Museum, entertainment in the form of motion pictures and music, and refreshments with members of the Association on hand to carve the pre-Christmas turkeys.

Among the events of the afternoon were a lecture by Dr. Austin Fife, Professor of Languages at Occidental College, on American folk-music, a sonata recital, a showing of the documentary film, "A is for Atom," conducted tours behind the scenes of the Museum, and dancing to the music of all nations. (Pictured above are Mrs. Birger Tinglof, Association President, Purnima Hutheesing, U. S. C. exchange student from India and Dr. William Easton.)



Lilliputian Special

More than 500 children and their friends and parents gathered at the Museum on a recent Saturday morning to tour the galleries, see a movie, meet the curators and, finally, enjoy a picnic lunch on the grounds. The occasion was the "Lilliputian Special," first in a series of six special events planned this winter and spring for Museum Association members. Other programs on the schedule include Hancock Park and the La Brea Tar Pits (February 16), an illustrated lecture on "Ghosts of the Mississippi" (March 26), a fine arts tour of Scripps and Pomona Colleges (April 6), a visit to the Los Angeles Arboretum (May 4), and a guided tour of the Banning Mansion and Coach House in Banning Park (June 1). The series is under the direction of Carl S. Dentzel, chairman of the program committee.

ASSOCIATION NEWS

4000th Member

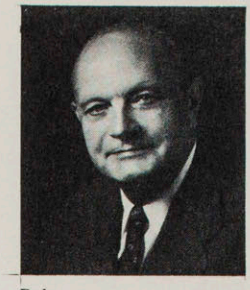
The Museum Association recently greeted its 4000th new member in the person of Mrs. Karl Lynn Davis, Jr., of West Los Angeles. As guest of honor at the monthly Executive Committee luncheon, Mrs. Davis was officially congratulated by Dr. Jean Delacour. director of the Museum, and Mrs. U. S. Grant IV, chairman of the membership committee for the Museum Association.

History Council

The History Council of the Museum Association recently elected Carl S. Dentzel as president, John Schutz as vice-president and Mrs. Stuart E. Weaver, Jr. as secretary. Members of the Council include approximately 40 representatives of Historical societies in the Southern California area. Here Mrs. Charlotte M. Masson, president of the First Century Families, presents to Mr. Dentzel a copy of an 1834 census of the population of the Mission San Fernando Rey de Espana.

Silver Anniversary

In recognition of his twenty-fifth anniversary as a member of the professional staff of the Los Angeles County Museum, Gregor Norman-Wilcox, Curator of Decorative Arts, received from the Museum Association an illuminated scroll commemorating "his outstanding service to the people of Southern California." Admiral Ernest Pace, Jr. made the presentation at the regular monthly meeting the Executive Committee.



Delacour

Elliott

Martin

Church

CONTRIBUTORS

Rhines

Dr. Jean Delacour, whose first-hand account of the Machris expedition into central Brazil provides the leading article of this Quarterly, has been Director of the Los Angeles County Museum since 1952. One of the world's leading ornithologists, and probably the most prominent aviculturist of the twentieth century, Dr. Delacour has in his time reared more than 40,000 birds, most of them on his family estate in Normandy, the historic castle of Cleres. Among his many other distinctions, he is President of both the International Commission for Bird Preservation and the Avicultural Society of America, and has authored literally hundreds of articles and books on the general subject of birds.

Frank P. Church, a decorator by profession, is by avocation an ardent horologiphile, as his article on clocks suggests. He has been collecting time-pieces for over thirty years, many of which have been displayed at the County Museum, and is the author of a definitive book on the subject. Mr. Church, who was born and educated in England, lives now in Lomita, California, happily surrounded by an incessant tautophony of ticks and chimes.

Yen Li-pen, a Chinese painter who lived more than 1300 years ago, is the artist to whom the horse on the cover is most generally attributed. The rubbing, displayed at the County Museum during the recent exhibit of "The Arts of the T'ang Dynasty," is of one of six stone reliefs that originally decorated a mausoleum built in 637 A.D. at Chao-ling, Shensi. It was lent to the exhibition by Dr. and Mrs. Benjamin Rowland of Cambridge, Massachusetts.

James H. Elliott, who analyzes the early work of three prominent artists in this issue, is completing his first year as Assistant Chief Curator of Art at the Museum. An Oregonian by birth, with a bachelor's degree from Willamette and a master's from Harvard, Elliott spent much of his post graduate career in France, first as a Fullbright Fellow and then as art critic for the Paris edition of the Herald-Tribune. He returned to the United States to become curator of the Walker Art Center in Minneapolis, a post he relinquished last March to assume his present position.

Mrs. Dorothy E. Martin, the Museum Librarian for the last four years and a member of the library staff for the last twelve, is official custodian of the 40,000 volumes that comprise the reference shelves and, unofficially, acts as Mrs. I.Q. to the members of the staff and public who come to her with their questions. A third-generation Californian, she is a considerable authority on the early history of the Golden State and she is married to Lloyd Martin, Associate Curator in Entomology at the Museum.

Howard Rhines, program director of KFAC, is especially well equipped to describe the series of binaural broadcasts which his station transmits each Sunday from the Museum. A musician as well as an experienced radio executive, Mr. Rhines began his professional career as an orchestral pianist and turned to radio announcing twenty years ago in his native Washington. He has one of the most extensive private collections of concert vocal recordings in the west and is a frequent contributor to musical and broadcasting publications.

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Charles F. Gehring.....*Assistant Director*
Dr. Hildegarde Howard..*Science Division Head*
Ruth I. Mahood.....*History Division Head*
Dr. Richard F. Brown.....*Art Division Head*
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